

REMARKS

This amendment is in response to the Official Action dated June 30, 2004. The drawings have been amended, Claims 1, 17 and 18 have been amended, and new Claims 19-21 have been added. The application now includes Claims 1-15 and 17-21 with Claims 1, 17 and 18 being the only independent claims. Favorable reconsideration, in view of the above amendments and accompanying remarks, is respectfully requested.

In paragraph 1 of the Official Action, the Examiner has objected to the drawings for the reasons noted therein. It is believed that the above changes to the drawings overcome this objection.

In paragraph 2 of the Official Action, the Examiner has objected to Claim 17 for the reasons noted therein. It is believed that the above changes to Claim 17 overcome this objection.

In paragraphs 3 and 4 of the Official Action, the Examiner has rejected Claims 1, 2, 7-10, 12-15, 17 and 18 under the provisions of 35 U.S.C. 102(e) as being anticipated by U.S. Publication No. 2003/0050147 to Backes et al. This rejection is respectfully traversed in light of the amendments to the claims.

As amended, Claim 1 defines the invention as a disc brake comprising: two brake shoes, which for generating a clamping force are pressable against both sides of a brake disc; a conversion device, which is connectable to a motor and which converts a driving motion of the motor into an actuating motion for actuating at least one of the brake shoes; a support device for taking up a reaction force, which upon generation of the clamping force is introduced into the conversion device; and two or more force sensors for measuring at least a fraction of the reaction force and disposed spaced apart at different positions between opposing faces of the conversion device and the support device. None of the cited references, alone or in combination, discloses or suggests such a casting apparatus as defined in Claim 1.

Specifically, Backes et al. discloses measuring elements 43, e.g. wire strain gauges, which are arranged on the surface of the guide member 29 within the electric motor 11. Backes et al. does not disclose or suggest two or more force sensors disposed “between opposing faces of the conversion device and the support device”, as recited in Claim 1. Furthermore, Claim 1 recites that the two or more force sensors are “disposed spaced apart at different positions” between the opposing faces of the conversion device and the support device. The reason for this arrangement is discussed in specification on page 3, lines 15-30, where it states that “According to the preferred development of the invention, the disc brake comprises a plurality of force sensors, which are arranged distributed in such a way that an averaged acquisition of the reaction force may be effected. Because of the high forces arising during a braking operation and the resultant deformation of individual components of the disc brake, e.g. of a caliper, the reaction force is namely introduced, as a rule, non-symmetrically into the support device. If the reaction force introduced into the support device is then measured at a plurality of positions spaced apart from one another, it is possible to generate a plurality of measured values, which allow an exact conclusion about the actually arising clamping force. In the simplest case, the conclusion about the actually arising clamping force is effected by taking the mean of the individual, measured reaction force values.” Although Backes et al. discloses “measuring elements 43, e.g. wire strain gauges, are arranged on the surface of the guide member 29”, this only discloses a single positioning of these strain gauges. Backes et al. does not disclose or suggest that two or more force sensors are “disposed spaced apart at different positions” between the opposing faces of the conversion device and the support device, as recited in Claim 1. Accordingly, it is believed that Claim 1, along with dependent Claims 2-15, are patentable over the cited references.

Claim 17 has been amended in a similar manner to that of Claim 1 and now recites that the disc brake includes at least two force sensors for receiving at least a fraction of the reaction force, the force sensors being arranged between opposing faces of the conversion device and the support device spaced at an angular distance from one another with respect to an axis of rotation of the brake disc. Thus, for those reasons discussed above with respect to Claim 1, it is believed that Claim 17, along with dependent Claims 19 and 20, are patentable over the cited references.

Claim 18 has been amended in a similar manner to that of Claim 1 and now recites that vehicle brake system disc brake includes at least two force sensors for receiving at least a fraction of the reaction force, the force sensors being arranged between opposing faces of the conversion device and the support device spaced at an angular distance from one another with respect to an axis of rotation of the brake disc. Thus, for those reasons discussed above with respect to Claim 1, it is believed that Claim 18, along with dependent Claim 21, are patentable over the cited references.

In view of the above amendments and accompanying remarks, it is believed that the application is in condition for allowance. However, if the Examiner does not believe that the above amendments to the claims place the application in condition for allowance, the undersigned attorney respectfully requests a telephone conference with the Examiner to discuss the application and the prior art references prior to the issuance of a final action by the Examiner.

AMENDMENTS TO THE DRAWINGS

Please amend drawing Fig. 1 by deleting the second occurrence of the reference character 32, which is the fourth reference character from the upper left hand side of the drawing, and its associated lead line arrow therefrom, as shown in red on the attached "Replacement Sheet". Formal drawings will be submitted upon approval of this change and issuance of a Notice of Allowance.